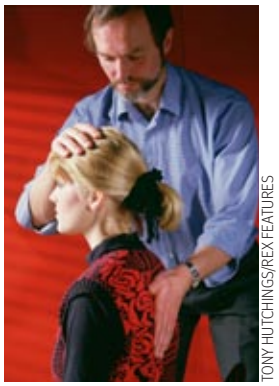
Non-pharmacological treatment for chronic low back pain

Supervised exercise is effective, if tailored to patients' requirements



TONY HUTCHINGS/REX FEATURES

RESEARCH, p 438

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Low back pain is a major health problem in developed countries, and it is most commonly treated in primary healthcare settings. Lifetime prevalence ranges from 49% to 70% and point prevalence from 12% to 30%.[1] The management of patients with chronic low back pain varies considerably within and between countries, and within and between healthcare professions.[1] In the linked randomised controlled trial, Little and colleagues compare the Alexander technique, exercise, and massage for people with chronic and recurrent back pain in 64 English general practices.[2]

One systematic review found that exercise therapy significantly reduces pain and improves function in adults with chronic low back pain, particularly in patients visiting primary care providers because of back pain.[3] However, prescription of home exercises alone is not effective for chronic back pain. Subgroup analysis found that exercise consisting of individually designed programmes, including stretching or strengthening, that are delivered with supervision provides the greatest improvement in pain and function in chronic non-specific low back pain.[4]

Another systematic review found that massage might be beneficial for patients with chronic back pain.[5] However, this conclusion was based mostly on one randomised controlled trial in which treatment consisted of a combination of massage, exercises, and education.[6] Other systematic reviews on conservative non-pharmacological interventions for chronic back pain found strong evidence that, in addition to exercise prescription, intensive multidisciplinary programmes also reduce chronic back pain.[7] Moderate evidence exists for the effectiveness of behavioural therapy, back schools, and spinal manipulation. Evidence shows that other interventions (such as lumbar supports and traction) are not effective. The effects of most beneficial treatments are usually small and short term, however.

The randomised trial by Little and colleagues found that the Alexander technique significantly improved pain and functioning after 12 months and that six lessons followed by exercise prescription are almost as effective as 24 lessons.[2] The effects of massage were similar to those of the Alexander technique at three months' follow-up, but disappeared by 12 months. The results of the study may not be generalisable to clinical practice because participants in this study were a random selection of patients who had attended primary care practices with chronic back pain in the past five years. These people were not seeking care and may not be comparable to those who visit their primary care doctor for treatment of lower back pain. Because the trial compared the Alexander technique with massage it is unclear whether this technique is more effective than different types of exercise.

Few guidelines exist on the management of chronic low back pain. The recently published European clinical guidelines recommend cognitive behavioural therapy, supervised exercise therapy, brief educational interventions, and multidisciplinary (biopsychosocial) treatment for chronic back pain.[8] Back schools and short courses of spinal manipulation or mobilisation can be considered. They did not recommend passive treatments (such as short wave diathermy and ultrasonography) or invasive treatments for chronic non-specific low back pain.[8]

The US guidelines recommend intensive interdisciplinary rehabilitation, exercise prescription, acupuncture, massage, spinal manipulation, yoga, cognitive behavioural therapy, and progressive relaxation for chronic low back pain.[9] However, the supporting evidence for these different treatments varied from fair to good. The evidence on back schools was inconsistent. Transcutaneous electrical nerve stimulation and traction were not effective for chronic low back pain, and the authors found insufficient evidence to recommend interferential therapy, low level laser therapy, shortwave diathermy, or ultrasonography.

What are the implications for clinicians and patients? Exercise therapy is effective for chronic low back pain, but no trial has compared the Alexander technique with different types of exercise. Patients' preferences and expectations should be considered when deciding which type of exercise to choose, because these factors seem to influence outcomes.[10] Adherence to exercise prescription is usually poor, so supervision by a therapist is recommended. If home exercises are prescribed, strategies to improve adherence should be used.

Although international clinical guidelines have some minor differences, overall they are relatively consistent. Clinicians should use these guidelines. However, the existence and dissemination of guidelines are not sufficient to change practice. Implementation is essential. Several trials have shown that multifaceted strategies consisting of education, clinical practice training sessions, feedback, and distribution of articles and a tool to facilitate communication between general practitioners and physical therapists have had modest effects on patient and process outcomes.[11 12] More intensive multifaceted interventions might be needed to improve adherence to these guidelines.

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Measuring the quality of healthcare systems using composites

Is useful for communication, but lacks the detail to improve care locally

RESEARCH, p 441

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Composite measures are increasingly being used to assess the quality of health care. Recent examples include English star ratings, the quality and outcomes framework points score in the United Kingdom, and national and state scorecards in the United States.[1-4] Composites summarise data from many quality indicators in one more easily understood number or rating.

This is particularly important for patients and the public.[5] Ease of interpretation is also important for policymakers, who need broad overviews of a system's performance.[1] Composites may therefore improve communication with the public (although the evidence that the public uses such data is weak, irrespective of how it is presented), increase accountability to payers, and help ensure that quality of care remains a priority in policy.

In the linked study, Steel and colleagues report findings from a rigorously designed and implemented representative survey of older people in England, and they present various composites based on 32 clinical and seven "patient centred" quality indicators.[6] They build on work done in the US to develop indicators of care for older people,[7] and they use composites similar to those reported in an influential study of the quality of US health care.[3]

The composite chosen is the overall percentage of recommended care received, defined as "all the care received by the population" divided by "all the care recommended for the population." Overall, 62% of the care recommended for older adults was actually received. The authors rightly conclude that although the quality of health care has generally improved in many areas, much remains to be done. However, the study also highlights some of the key uncertainties and problems relating to the use of composites.

Firstly, any composite is only as good as its underlying measures. The measures used here were modified from the US based Assessing Care of Vulnerable Elders (ACOVE) programme,[8] but several of them—such as offering antihypertensive drugs to all patients with stroke, rather than treating blood pressure to target—differ greatly from UK practice. Additionally, the measures used are all derived from a patient survey, but clinical quality is usually better measured by directly examining clinical records.[3] One consequence of using survey methods is that the processes measured are often not that tightly linked to patient outcomes, because of difficulties in accurately measuring intermediate clinical outcomes. Although excellent process is a crucial first step, measuring glycated haemoglobin or offering blood pressure treatment by itself makes no difference to patient outcomes unless the control of intermediate outcomes improves.[9]

Related to this, truly summarising "quality" requires the underlying measures to provide comprehensive coverage of all dimensions of quality. Similar work in the US used several hundred measures rather than the 39 used here.[3 7] The "patient centred care" domain in this study is particularly narrow—it focuses almost entirely on information and support for self management of selected conditions.

Finally, as the authors mention, all composites are bedevilled by questions of weighting. In the composite used here every opportunity to deliver recommended care is weighted equally. This means that rare conditions do not contribute much to the overall score. Hence, monitoring of the international normalised ratio for people on warfarin forms 0.2% of the total score, whereas explaining the meaning of high cholesterol to patients forms 8.7%.[6]

All weighting systems are arbitrary, and equal weighting is transparent even if it is indefensible at the

margins. However, with equal weighting, quality measured by a composite could seem high even if rare but critical processes were lethally unsafe. It is questionable whether such different kinds of measure should be included in a single composite. Given the increasing use of composites, research is needed to define which indicators can legitimately be made into composites, to develop and test clear rationales for weighting schemes, and to build understanding of how changing weights alters conclusions about performance.[1]

However, debate about the important technicalities of composite measures should not overshadow Steel and colleagues' conclusion that the quality of health care for older adults has important deficiencies, even given the relative narrowness of the measures used. This applies particularly to "geriatric" conditions that cause high morbidity, like deafness and osteoarthritis, and that are currently excluded from routine measurement and incentivisation. This finding reinforces evidence that performance management of particular measures risks creating tunnel vision and crowding out improvement work for other care.[10-12]

Steel and colleagues' use of composites makes this message clearer for the public and policymakers, but composites are less practically useful for turning findings into interventions. From a clinician's and a manager's perspective the devil is always in the detail when it comes to improving quality. The challenge this study poses is to make the shift from identifying the problem using a national composite, to local measurement of the problem, and finally to local intervention to improve care.

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Childhood immunisation for varicella zoster virus

Universal adoption depends on science, politics, and society's attitude to risk

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When childcare centres, schools, and colleges in the United States reopen after the summer break, attendees will need to prove that they have been immunised against the varicella zoster virus—which causes varicella (chickenpox) and herpes zoster (shingles)—or to demonstrate naturally acquired immunity.[1] In the United Kingdom (and most of Europe), the debate intensifies as to whether we should follow suit and instigate universal childhood immunisation against this virus.

Immunisation has reduced the incidence of varicella in the US since the first vaccine became available in 1995.[2-4] So why have more countries not adopted universal immunisation?

Firstly, there is a concern that childhood immunisation for varicella zoster virus may shift the burden of disease to adults. Most children get varicella at some time, and in most cases the consequences are not life threatening. Getting varicella as an adult, when pregnant, or when immunologically compromised generally leads to more severe complications. Adults are 23-29 times more likely to die from primary infection.[5] Once a high proportion of children are routinely immunised it is increasingly difficult for non-immunised children to contract varicella naturally, which exposes them to greater risk from varicella in adult life. This is the main reason that the school and college requirement is being enforced.

Secondly, getting varicella as a child confers lifelong immunity, but it is not yet clear how long vaccine induced immunity will last. Early data indicated that the duration of immunity from a one dose regimen was at least 20 years.[6] However, because varicella was so endemic, it was not until most children had been immunised that children in trials were not re-exposed to varicella through friends and siblings—a phenomenon that would potentially extend their immunity.[7] Recent analysis has shown that efficacy wanes more quickly than had been hoped.[8] In 2005, the US adopted a two dose regimen.[1] Current evidence indicates that this will substantially reduce disease outbreaks and severity of disease.[9]

Thirdly, the value of universal childhood immunisation rests heavily on the relation between varicella and herpes zoster. The virus lies dormant in the sensory nerve ganglia of people who have had varicella until a decline in cell mediated immunity, usually in old age, is thought to trigger reactivation as herpes zoster. Herpes zoster, especially if it leads to neuralgia, is difficult to relieve and can seriously reduce the quality of life of elderly people. One way to protect against reactivation is thought to be to boost immunity via occasional re-exposure

to wild-type (naturally occurring) varicella, often through contact with children and grandchildren.[10] If this is correct, vaccine induced herd immunity will reduce circulating wild-type varicella and increase the prevalence of herpes zoster. When the varicella vaccine was licensed, this possibility was mostly based on mathematical modelling.[11]

Monitoring could check whether immunisation has increased the prevalence of zoster, but population sizes in sites where varicella surveillance occurs have often not been large enough to monitor the age specific incidence of herpes zoster. It will also take some time for the effects of universal immunisation to be seen. As children become adults, if a vaccine yields life long immunity and if coverage is universal then the risk of herpes zoster in those who are immunised will decline.

Policy makers in the UK have several different immunisation strategies to choose from. In the absence of universal childhood immunisation, immunising adolescents who have not acquired natural immunity will have little effect on childhood varicella but will reduce cases of adult varicella and help reduce cases of herpes zoster. Immunising high risk groups (to the extent that they can be identified) and those who come into contact with high risk groups, such as hospital staff, has been effective in preventing cases in adults and fetuses. In the case of universal childhood immunisation, coverage would have to be very high and should aim eventually to eliminate circulation of the wild-type virus; this would be even more important if the vaccine induces insufficient immunological memory. If a second dose does not provide immunity into old age, booster shots will be needed as populations age. In addition, to counter any decline in boosting for people who were not immunised but who were infected with wild-type varicella, booster zoster vaccines would probably have to be used. In the US, the Advisory Committee on Immunization Practices (ACIP) recommended in October 2006 that people aged 60 and over—including those who had had previous episodes of herpes zoster—should receive a recently licensed zoster vaccine.

To complicate matters, some UK parents have opted not to immunise their children after rumours about the dangers of the combined measles, mumps, and rubella vaccine, so a compulsory programme is politically problematic. If compulsory, one solution would be to offer a choice of how a child is immunised—either via a combined measles, mumps, rubella, and varicella vaccine or a stand alone varicella vaccine. Indeed, in the US, the ACIP recently reversed its preference for the combined vaccine to a neutral position. A high proportion of adults are also unlikely to adhere to a voluntary programme of adult immunisation and boosters are unlikely to be as protective as natural boosting.[12] At the very least, arguments in favour of universal childhood immunisation against varicella must also contain strategies to immunise adult populations.

Policy makers face a dilemma. Must we always wait for all the evidence we need before acting so that we will be judged, with hindsight, as having made the right decision? What if we can only know by taking actions that give us the natural experiment that will tell us the best policy? Whether or not we should have universal childhood immunisation for varicella in the UK hinges on a complex mix of society's attitude towards different risks, politics, and scientific understanding.

SATURN STILLS/SPL

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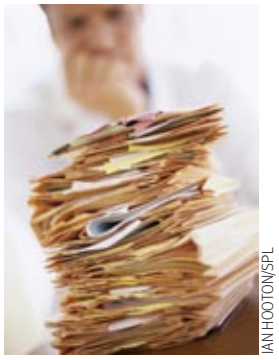
Outcomes of the European Working Time Directive

From 56 to 48 hours is a step too far



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The European Working Time Directive was produced by the Council of the European Union in 1993 and incorporated into British law in 1998 as the Working Time Regulations.[1] Various aspects of the directive have had a major effect on the practice of medicine in the United Kingdom, most importantly the reduction in the maximum working week to 56 hours in 2007, a planned further reduction to 48 hours in 2009, and the need for a minimum of 11 hours' rest in any 24 hour period.

Although not clearly stated in the directive, the aims of the council presumably were to protect workers from being coerced by employers to work excessive hours; to improve the quality of life of workers by permitting sufficient free time for family and leisure; and to reduce risk caused by tired workers. Although many industries are affected by the change in the law, medicine poses particular problems because of the need to train junior medical staff and to provide a 24 hour service that can respond to variable demand while ensuring continuity of, often complicated, patient care. Furthermore, unlike many other professions, junior and now senior doctors are paid per hour, which exposes the length of the working day and week to legislation.

If the directive was meant to improve clinical care and the quality of life and training for junior medical staff, its effect has been the opposite. The changes to working hours have had a major negative effect on the working life, free time, and education of junior doctors in the NHS.[2 3] Although efforts have been made to create compliant rotas, continuity and quality of care have also been adversely affected in many services across the NHS.[2-4] The Royal College of Surgeons' survey of junior doctors in 2005 showed that—since implementation of the directive—75% of juniors think that continuity of care has deteriorated, around 90% think that direct contact with patients and training have decreased, and more than half of specialist registrars think that their quality of life is worse on partial shifts.[2] The reduction from 56 to 48 hours a week will lead to another 12% fall in daytime availability of junior doctors in the average rotation, further decreasing direct contact with patients, quality of care, and training of junior staff.[5] This year the BMA Junior Doctors Committee accepted that a 48 hour week was not compatible with surgical training,[6] and a recent BMA survey indicated that 57% of junior doctors and 67% of all grades think that doctors should be able to opt out of the 48 hour week.[7]

It is therefore time to ask whether the current law is succeeding in the above aims and whether these cannot be better achieved by a relaxation of the regulations. Historically, Britain—like many other countries—exploited junior doctors with work patterns that often required 80 or more hours on duty each week. These hours were remunerated poorly, with overtime initially not paid and subsequently paid at only 30% of the basic hourly wage. This practice had, however, largely disappeared by the 1990s, when changes in pay meant that employing doctors for long hours was more expensive than employing more doctors.

Numerous studies have shown that excessive hours of work and prolonged shifts increase the risk of work related errors, injuries while at work, and accidents after work.[8-11] Most of these studies have looked at medical employees working more than 80 hours a week, with shifts of longer than 24 hours,[10 11] although in other industries shifts of longer than 16 hours have been shown to increase risks.[8 9] The reduction under the European Working Time Directive to a maximum 56 hours a week (and 48 hours planned in one year) has, however, dramatically changed working patterns. More than half of senior house officers in the 2005 UK Royal College of Surgeons survey were doing full shift rotas.[2] This can be more tiring and disruptive to people's social lives than a normal working week with one or two nights on call and no need to switch to a different sleep pattern. There is an argument that it is less tiring to work a 36 hour period with several hours of sleep than to work five consecutive nights on call with no sleep during the night while trying to sleep during the day.[12 13] Complicated rotas, driven in part by the new deal covering on call and weekends, also reduce the number of free weekends because of the need to split the weekend. A court ruling by the European Court of Justice that every hour on call—even when at home undisturbed or asleep in the hospital—is an hour worked has added to the difficulty (SiMAP ruling[14]).

The adjustment of working patterns in hospitals to accommodate the directive creates problems of combining continuity of patient care with appropriate training and a reasonable quality of life for staff. Junior doctors have to spend an increasing proportion of their working time "handing over" to incoming staff, therefore reducing time available to provide direct patient care. A high proportion of the working week is spent on solitary out of hours shifts with little or no training value; this will get worse with the introduction of a 48 hour week.[2 3 5] Many specialties are sharing junior staff because of insufficient numbers of juniors to provide a "legal" rota. This almost invariably results in poorer continuity of care and inadequate communication between junior doctors and nursing staff and between junior doctors and on-call consultants. As a consequence, many patients—particularly in larger specialties such as general medicine and surgery—will receive almost no routine care at night and at weekends. These problems cannot simply be solved by employing more junior doctors because this reduces each doctor's contact with patients and, therefore, training.

British medicine is highly respected worldwide because of the training provided and the breadth of experience and clinical expertise displayed by most consultants and general practitioners. This results from the length of training and the experience gained by

doctors through direct contact with patients on the wards, clinics, and operating theatres. Reading and lectures are no substitute for this experience.

The European Working Time Directive is not achieving any of its presumed aims for junior medical staff—quality of life has not improved, training has deteriorated, and, for most patients, medical care is not safer.[2-5] We therefore call on the British government, in collaboration with other European countries facing similar problems,[3 6 15 16] to abandon the tightening of maximum working hours from 56 to 48 hours and to reduce the minimum daily rest from 11 to eight hours. Probably only Sweden, Denmark, and the UK will be able to comply with the 48 hour limit for junior doctors by August 2009,[3 6] which suggests that such a move by the British government might be widely supported across the European Union. At the very least, hospitals and medical staff should be exempt from the 48 hour limit. The concept of "on call" not contributing in full to the total hours of work should be reintroduced—this seems to have been accepted, in principle, by a recent meeting of European Union employment ministers.[6]

Professionals often choose to work long hours because they enjoy their work, and from a desire to provide a good service and to improve their expertise in their chosen profession. Although limits need to be set on the number of hours people work, the change from 56 to 48 hours is a step too far. The creation of complicated rotas, full shifts, and cross cover is not the solution to a fundamentally flawed reduction in hours of work.

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